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Fostering Autonomy in Flipped Learning: Pre-Class, Active Learning, and Metacognition

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Abstract

This study aims to investigate how the flipped classroom fosters autonomous learning. Employing a qualitative case study approach, the research involved 10 students from the English Education program. The findings identify three key patterns of autonomous learning in the flipped classroom: Pre-class preparation, active learning in class, and metacognitive development. Pre-class preparation allows students to engage with learning materials before class, helping them build foundational knowledge and identify areas for improvement. Active learning in class promotes interaction and critical thinking through collaborative activities, enabling students to apply their pre-class knowledge effectively. Metacognitive Development enhances students' ability to reflect, set learning goals, and regulate their learning strategies. To maximize the benefits of the flipped classroom, educators should design structured pre-class activities, facilitate interactive discussions, and encourage self-regulation strategies. By implementing these practices, students can develop greater autonomy, improve critical thinking skills, and become more engaged in their learning process.
Keywords: Autonomy; Flipped Learning; Pre-Class; Active Learning; Metacognition

1. Introduction

The shift from traditional teacher-centered instruction to student-centered learning has gained significant attention in recent years, particularly with the rise of the flipped classroom model(Bergmann & Sams, 2012). This instructional approach redefines the learning process by moving direct instruction outside the classroom, allowing students to engage with new material at their own pace before participating in interactive activities during class (Chang & Hwang, 2018). By doing so, the flipped classroom fosters a learning environment where students are encouraged to take greater responsibility for their academic progress. One of the key benefits of this model is its ability to promote autonomous learning, a crucial skill that enables students to self-regulate their learning process, set goals, and seek additional resources independently(Gavranović, 2017).

Autonomous learning is essential in higher education, as it encourages students to develop self-directed learning habits that enhance their critical thinking and problem-solving abilities (Aprianto et al., 2020). In the flipped classroom, students must engage with pre-class materials such as video lectures, readings, and online exercises before attending in-person sessions. This approach requires them to monitor their understanding, identify gaps in knowledge, and take the initiative to address these gaps through reflection, peer discussions, or additional research (Aprianto et al., 2020). Unlike traditional learning models, where students passively receive information from instructors, the flipped classroom places students at the center of their own learning journey, fostering independence and self-motivation (Abeysekera & Dawson, 2014; Kustandi et al., 2019).

Flipped learning and autonomous learning are interconnected, as both emphasize the importance of student agency in the learning process (Kunwar & Shrestha, 2025). The flipped classroom provides opportunities for students to take ownership of their learning by engaging with instructional materials independently before applying their knowledge in interactive class activities (Zaka et al., 2019). This process aligns with the principles of autonomous learning, where students must regulate their own learning behaviors, evaluate their understanding, and develop problem-solving skills. The combination of flipped and autonomous learning can lead to deeper comprehension and long-term knowledge retention, as students actively construct their understanding rather than passively receiving information (Prince, 2004). By integrating technology and self-directed study, the flipped classroom encourages learners to become more independent, adaptable, and responsible for their academic growth.

Despite its benefits, promoting autonomous learning in the flipped classroom comes with challenges. Not all students possess the self-regulation skills needed to manage their learning effectively, and some

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may struggle with time management or motivation (Hashim & Shaari, 2020). Additionally, access to digital resources and the ability to adapt to a new learning structure can affect students' engagement with autonomous learning. Therefore, it is essential for educators to implement strategies that support students in developing metacognitive skills, such as guided learning pathways, reflective exercises, and active classroom engagement (Strayer, 2012). By doing so, the flipped classroom can successfully cultivate autonomous learners who are prepared to navigate complex academic and professional environments.

While previous studies have examined the effectiveness of the flipped classroom in improving student engagement and academic performance, limited research has specifically focused on how this model enhances autonomous learning, particularly in the context of English language education. Furthermore, there is a lack of empirical studies exploring students' perceptions of autonomy in flipped learning environments, especially in non-Western educational settings. This study aims to investigate how the flipped classroom fosters autonomous learning findings of this research will contribute to a deeper understanding of the relationship between flipped instruction and learner autonomy, providing valuable insights for educators seeking to design more effective student-centered learning experiences.

1.1 Previous study of Autonomous in Flipped Classroom

Several studies have examined the relationship between autonomous learning and the flipped classroom, highlighting its potential to foster self-directed learning. Gavranović (2017) explored how flipped learning environments support student autonomy by allowing learners to engage with instructional materials before class, leading to increased confidence and self-regulation (Gavranović, 2017). Similarly, Kawinkoonlasate (2019) found that students in a flipped classroom demonstrated higher levels of motivation and responsibility for their own learning, as they had more control over the pace and depth of content engagement (Kawinkoonlasate, 2019). Zainuddin and Perera (2019) further emphasized that flipped instruction enhances autonomous learning by integrating digital resources and active learning strategies, which encourage students to take ownership of their educational process (Zainuddin & Perera, 2019). These studies collectively indicate that the flipped classroom has a positive impact on learner autonomy by shifting the focus from teacher-centered instruction to student-driven learning.

However, some researchers have also identified challenges in promoting autonomous learning within a flipped classroom setting. Rizal et al. (2020) noted that while students generally benefit from the flexibility of flipped learning, some struggle with time management and the ability to regulate their own learning processes effectively (Rizal et al., 2020). Magaña et al. (2022) highlighted the importance of scaffolding and teacher support in fostering autonomy, suggesting that without proper guidance, students may face difficulties in self-directed learning environments (Magaña et al., 2022). Additionally, Roux and Hamciuc (2014) stressed that the success of flipped learning in promoting autonomy depends on factors such as students' digital literacy, motivation, and access to learning resources (Roux & Hamciuc, 2014). These findings suggest that while the flipped classroom can enhance autonomous learning, educators must provide structured support to help students develop the necessary self-regulation skills.

1.2 Autonomous Learning

Autonomous learning, often referred to as self-regulated learning, self-learning, or self-managed learning, requires students to take responsibility for their own learning in a critical and independent manner, with the ultimate goal of developing the ability to learn effectively. Furthermore, autonomous learning offers numerous advantages for students, including fostering personal growth, enhancing metacognitive skills, improving the ability to organize their own learning processes, and boosting self-esteem and confidence (Hernandez et al., 2021). Additionally, it contributes to holistic development by strengthening both cognitive and personal aspects of learning.

Autonomy is fundamentally a capability that enables learners to detach, engage in critical reflection, make decisions, and take independent actions in their learning process. It not only requires but also fosters a specific psychological connection between the learner and both the learning process and content (Little, 2016). This capacity for autonomy is evident not only in how students approach their learning but also in how they apply their acquired knowledge to broader contexts.

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As conclusion, autonomous learning empowers students to take control of their educational journey by fostering self-regulation, critical thinking, and independent decision-making. By enhancing both cognitive and personal development, it equips learners with the skills necessary to adapt their knowledge to various contexts, ultimately preparing them for lifelong learning and academic success.

2. Metode

2.1 Study Design

This research employed a qualitative case study approach to gain an in-depth understanding of teachers' perceptions of the flipped classroom. A case study is commonly used in social sciences as it involves examining subjects in their natural environment with minimal researcher interference. As Saldana explains, this method focuses on a single unit of analysis, such as an individual, group, event, or institution, making it a practical and holistic approach for researchers learning qualitative fieldwork, data collection, and analysis. The primary objective is not necessarily to generalize findings to broader populations but rather to explore specific cases in detail.

2.2 Participants

This study involved 10 students from the English Education program who were selected based on their experiments in implementing the flipped classroom in their learning. Their experience with this instructional method was a key criterion for inclusion in the study.

2.3 Instruments

The researcher utilized semi-structured interviews conducted in Indonesian to enable participants to express their thoughts comfortably. This approach was selected for its adaptability, allowing for a thorough exploration of participants' perspectives while maintaining a structured focus on key aspects, particularly autonomous learning in the flipped classroom.

2.4 Data Analysis

The data were analyzed using thematic analysis, starting with a thorough review of the dataset, followed by initial coding. Key themes were identified, analyzed, and linked to establish meaningful patterns. Categories and codes were compared, and the central themes were refined to create theoretically grounded classifications of the participants' responses.

3. Results

The research findings identify three key patterns of autonomous learning in the flipped classroom: Pre-Class Preparation, Active Learning in Class, and Metacognitive Development. Pre-Class Preparation enables students to engage with materials beforehand, building foundational knowledge. Active Learning in Class fosters interaction and critical thinking through collaborative activities. Metacognitive Development enhances students' ability to reflect, set goals, and regulate their learning. These patterns illustrate how the flipped classroom promotes student autonomy and deeper engagement in learning.

3.1 Pre-Class Preparation

Pre-Class Preparation involves students' engagement with learning materials before attending class, enabling them to build foundational knowledge and identify areas requiring further clarification. Pre-class preparation in the flipped classroom significantly enhances students' autonomous learning by fostering self-regulation, critical thinking, and active engagement. By interacting with learning materials such as videos, readings, and exercises before attending class, students develop a sense of responsibility for their own learning. This process encourages time management and self-discipline, as they must plan and allocate time effectively to understand key concepts independently. Additionally, pre-class preparation allows students to identify areas of difficulty, prompting them to seek clarification and engage more actively in class discussions. Research has shown that this early engagement leads to deeper comprehension, increased motivation, and improved problem-solving skills, ultimately promoting learner autonomy and making students more proactive in their education.

> *"Before class, I make a schedule to watch videos and read the materials so I don't fall behind. If I don't understand something, I take notes and try to find the answer before class. This helps me stay organized and ready for discussions. Learning this way makes me more responsible and helps me manage my own study time"* (S4)

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The S4's response shows excellent self-regulation skills in pre-class preparation. Making a schedule and staying organized demonstrates strong time management, which is essential for autonomous learning. Taking notes and seeking answers independently also reflect your ability to take responsibility for your own learning. To further enhance your preparation, you might consider setting specific goals for each study session or discussing difficult topics with classmates before class.

> *"Before class, I actively take notes while watching videos and try to answer questions on my own. If I find something difficult, I look for more information from other web or resources. Or sometime I discuss it with friends. This helps me stay focused and ready to participate in class activities. I feel more confident because I already have some understanding before the lesson starts."* (S1)

S1's response demonstrates strong active engagement and self-directed learning in pre-class preparation. Actively taking notes and attempting to answer questions independently show a high level of responsibility in the learning process. Additionally, seeking more information from other web sources and discussing with friends indicate a proactive approach to overcoming challenges. This strategy not only enhances understanding but also prepares the student for meaningful participation in class.

Active Learning in Class

Active learning in class is a crucial component of the flipped classroom model that enhances students' autonomous learning. Since students engage with learning materials before class, classroom time is used for interactive and collaborative activities such as discussions, problem-solving, case studies, and group projects. These activities require students to take an active role in constructing knowledge rather than passively receiving information from the instructor.

In the flipped classroom, active learning fosters autonomy by encouraging students to think critically, ask questions, and apply their pre-class knowledge in meaningful ways. Instead of relying solely on the teacher, students take responsibility for their learning by participating in discussions, solving problems independently, and seeking clarification when needed. Research has shown that this approach improves students' self-regulation, motivation, and confidence in managing their own learning process. Furthermore, active learning in class provides opportunities for students to engage in peer collaboration, where they exchange ideas, challenge different perspectives, and develop problem-solving skills. This interactive learning environment supports autonomous learning by encouraging students to take initiative, reflect on their understanding, and develop lifelong learning habits.

> *"During class discussions, I get to share my ideas and listen to different perspectives from my classmates. This helps me think more critically and understand the topic better. I also feel more responsible for my learning because I have to prepare before class so I can contribute to the discussion. Working with others teaches me to express my thoughts clearly and solve problems together."*(S5)

The S5's response highlights key aspects of active learning and its role in fostering autonomous learning. By engaging in class discussions, the student is not only actively processing information but also developing critical thinking skills through exposure to diverse perspectives. This aligns with the principles of active learning, where students take an active role in constructing knowledge rather than passively receiving information.

> *"Peer teaching and presentations in the flipped classroom have really improved my critical thinking. Explaining a topic to my classmates forces me to fully understand it, break it down clearly, and connect ideas. Presenting also challenges me to think quickly, defend my points with evidence, and consider different perspectives, making me a more confident and analytical thinker."* (S8)

The S8's response effectively explains how peer teaching and presentations enhance critical thinking. It clearly highlights key aspects like deep understanding, idea connection, quick thinking, and argument defense. However, the response could be strengthened by providing a specific example of a time when the student had to explain a concept or defend an argument. This would make the explanation more concrete and relatable. Additionally, elaborating briefly on how peer interaction (questions and discussions) further sharpens critical thinking would add depth.

Metacognitive development

Metacognitive development in a flipped classroom is crucial for fostering autonomous learning, as it encourages students to reflect on and control their own learning process. In this setting, students engage

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with learning materials outside of class, allowing them to assess their understanding and identify areas that need further attention. This reflection helps them plan, monitor, and evaluate their learning, making them more aware of their strengths and weaknesses.

As students become more metacognitive, they develop self-regulation strategies to improve their learning. This includes adjusting their approach to difficult topics, seeking additional resources, and evaluating their progress. In the flipped classroom, this metacognitive awareness enhances independent learning by empowering students to make informed decisions about their learning strategies, leading to greater confidence and effectiveness in their academic pursuits.

> *In flipped classroom learning, I've become better at managing my own learning process. During the at-home sessions, I review the materials provided. By studying the material repeatedly, I can identify what I've understood and what I still need to grasp, so I focus on learning those parts more deeply. During this process, I use different learning strategies, such as breaking down the material to make it easier to understand, or finding other resources that explain it more clearly.* (S7)

S7's response demonstrates a strong understanding of metacognitive development, highlighting key elements like self-reflection and self-regulation in the learning process. By repeatedly reviewing materials, the student identifies what they've understood and what requires further attention, showing proactive engagement with their learning. The use of strategies like breaking down material and seeking alternative resources reflects an adaptable approach to mastering content. To strengthen the response, the student could mention how they track their progress or evaluate their learning over time. Overall, the response effectively shows how the student is developing autonomy in managing and improving their own learning.

> *At home, I first check the learning objectives of the given material. Then, I watch the video, read the material, and try to understand it. If I understand it well, I proceed to complete the assigned tasks. However, if I still have difficulties, I look for additional resources on the web that are easier for me to understand. In class, I participate in discussions about the material presented by the lecturer. I realize that there are many different perspectives from my classmates on the same topic, which actually enriches my knowledge.* (S10)

The student's response reflects strong metacognitive awareness in the flipped classroom by demonstrating key self-regulated learning strategies. They begin with planning by checking learning objectives before engaging with the material, ensuring a clear focus. During the learning process, they practice monitoring by assessing their understanding and seeking additional resources when needed, showing adaptability in their study approach. Finally, they engage in evaluation by participating in class discussions, comparing perspectives, and reflecting on how different viewpoints enhance their understanding. This self-directed learning approach aligns well with the flipped classroom model, promoting deeper comprehension and critical thinking.

4. Discussion

The findings highlight that pre-class preparation in the flipped classroom significantly enhances students' self-regulation and autonomous learning. Students who create study schedules, stay organized, and independently seek answers demonstrate strong self-directed learning habits. These behaviors align with previous research emphasizing the role of pre-class activities in fostering self-regulation and time management (Abeysekera & Dawson, 2014; Gavranović, 2017; Rizal et al., 2020). Chang and Hwang (2018) also argue that students in a flipped classroom must take greater responsibility for their learning, as they are required to engage with materials before attending class (Chang & Hwang, 2018). The proactive strategies observed, such as setting learning goals and reviewing concepts before discussions, further support the notion that structured pre-class preparation strengthens students' ability to manage their own learning process effectively.

Additionally, the findings suggest that active engagement in pre-class preparation leads to deeper comprehension and more meaningful classroom participation. The students' use of note-taking, online resources, and peer discussions reflects a deep learning approach, which has been linked to improved problem-solving skills and increased motivation (Kawinkoonlasate, 2019; Zaka et al., 2019). Bergmann and Sams (2012) emphasize that students who actively engage with materials beforehand are more

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likely to contribute to discussions and clarify misconceptions, reinforcing the importance of pre-class preparation in maximizing the benefits of the flipped classroom model. Furthermore, research by Strayer (2012) indicates that when students anticipate challenges and seek clarification before class, they develop stronger metacognitive skills and critical thinking abilities. These findings underscore the need for educators to design structured pre-class activities that promote engagement, ultimately fostering learner autonomy and academic success.

Active learning in the flipped classroom plays a crucial role in fostering student autonomy by shifting classroom time to interactive and collaborative activities. Engaging in discussions, problem-solving, and peer teaching encourages students to take responsibility for their learning and apply pre-class knowledge in meaningful ways. This aligns with (Prince, 2004), who emphasizes that active learning enhances conceptual understanding and critical thinking. Similarly, (Hashim & Shaari, 2020) found that students in active learning environments show higher engagement and academic performance compared to those in traditional lecture-based settings.

Furthermore, peer collaboration allows students to exchange ideas, refine their reasoning, and strengthen problem-solving skills. (Chi & Wylie, 2014) also found that explaining concepts to peers reinforces understanding and promotes deeper cognitive engagement. These findings suggest that well-structured active learning activities in the flipped classroom can significantly enhance students' ability to think critically and learn autonomously.

The findings also highlight the crucial role of metacognitive development in fostering autonomous learning within the flipped classroom. By engaging in self-reflection, students assess their understanding, identify learning gaps, and adopt strategies to improve their comprehension. This aligns with the work of (Lai & Hwang, 2016), who found that metacognitive strategies in flipped classrooms significantly enhance students' ability to regulate their learning. Similarly, (Sun et al., 2018) emphasized that students who actively monitor and evaluate their learning progress become more self-directed, leading to improved academic performance. The student responses in this study illustrate these principles by demonstrating planning, monitoring, and evaluating their learning process, reinforcing the effectiveness of metacognitive awareness in flipped learning environments.

Furthermore, the use of self-regulation strategies, such as reviewing materials repeatedly, seeking additional resources, and engaging in discussions, aligns with research suggesting that flipped classrooms promote deeper learning and critical thinking. Bergmann and Sams (2012) argued that shifting instructional time to active, student-centered learning encourages learners to take responsibility for their education. Similarly, Strayer (2012) found that the flipped model fosters greater student engagement by allowing them to explore topics independently before refining their understanding through peer discussions. The student responses confirm that this approach helps learners develop confidence and adaptability in their study habits, ultimately supporting their ability to think critically and apply knowledge effectively.

5. Conclusion

Autonomous learning plays a pivotal role in the effectiveness of the flipped classroom model, as it empowers students to take control of their learning process. The findings suggest that pre-class preparation, active learning, and metacognitive development are key factors in fostering learner autonomy. When students engage with learning materials before class, they develop self-regulation skills such as time management, goal setting, and independent problem-solving. This proactive approach enhances their ability to understand concepts more deeply and participate actively in classroom discussions.

Furthermore, the flipped classroom encourages students to think critically, collaborate with peers, and refine their learning strategies through self-reflection. By actively monitoring their progress, seeking additional resources, and engaging in discussions, students strengthen their ability to learn independently. These findings highlight the importance of designing flipped learning environments that promote structured autonomy, ensuring that students develop the skills necessary for lifelong learning and academic success.

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